DOCUMENT RESUME

ED 262 078 TM 850 557

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TITLE Evaluating the Evaluators: A Study of the Evaluators and Evaluations of Educational Software.
PUB DATE Apr 85
NOTE 29p.; Paper presented at the Annual Meeting of the American Educational Research Association (69th, Chicago, IL, March 31-April 4, 1985).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Comparative Analysis; *Computer Assisted Instruction; *Courseware; Elementary Secondary Education; English Instruction; Evaluation Criteria; Evaluation Methods; Evaluators; *Instructional Material Evaluation; *Interrater Reliability; *Language Arts; Media Selection; *Reading Instruction
IDENTIFIERS Evaluation Problems; Meta Evaluation

ABSTRACT

Reviews of 2,554 educational software programs by thirty reviewing sources were examined to compare the tendency of different review sources to give generally positive, negative, or neutral ratings. The reliability of language arts and reading software reviews was studied. Thirty-eight percent of the software programs were reviewed by two or more sources. In order to assess the extent to which certain review sources tended to rate the same software positively, negatively, or neutrally compared to other review sources, a probability analysis was undertaken. Results indicated that the review sources failed to agree on the ratings they assigned to software; that certain sources tended to rate all programs positively despite neutral or negative ratings from other sources; and that there was quite a difference between sources that evaluate software using uniform instruments and those that relied on reviews authorized by individuals. In conclusion, it is suggested that educators and parents seek out several reviews of programs they are considering purchasing, one of which should be a systematic review source such as MicroSIFT or EPIE Institute. Preview of the software is also recommended. (GDC)

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Evaluating the Evaluators

A Study of the Evaluators and Evaluations of Educational Software

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Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, Illinois, April 1985

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Overview

Faced with selecting educational software from over 6126 available programs and the impossibility of identifying, reviewing and previewing them, educators and parents draw on reviews and evaluations of software in numerous publications and services. This paper examines the extent to which these educational programs have been reviewed and compares the tendency of different review sources to give generally positive, negative or neutral ratings to the software they have reviewed. Language arts and reading software and reviews were analyzed both quantitatively and qualitatively to identify the reliability of various review sources in evaluating and rating these software programs.

It was found that 2554 educational software programs had been reviewed by one or more of the thirty review sources used in this study. The number of reviews identified by specific review source ranged from a low of one to a high of 575 reviews (EPIE). No one source had reviewed more than 10% of software programs identified in the EPIE database; most sources had reviewed less than 2.5% of software programs. Of the 2554 programs reviewed no one review source had reviewed more than 25%; most sources had reviewed less than 6% of these programs. Overall, certain sources such as the California Library Media Consortium, Classroom Computer Learning and The Computing Teacher gave positive ratings to 75% of the software programs they reviewed. Most sources gave few negative ratings with the exception of EPIE (32.7%), Educational Technology (20.2%) and MicroSIFT (22.3%).

In a detailed analysis of the reviews of language arts and reading software 61.9% of the programs that had been reviewed had been reviewed by one source, 20.5% by two sources, 8.2% by three sources and the remainder by from four to ten sources. Overall, certain sources such as Courseware Report Card, Electronic Learning, and Classroom Computer Learning tended to publish positive reviews (ranging from 69.7% to 93.7%). Other sources such as The Computing Teacher and EPIE tended to publish majority of neutral and/or negative reviews.

In order to guage the extent to which certain review sources tended to rate the same software positively, negatively or neutrally compared to other review sources a probability analysis was undertaken. It was found that if EPIE rated specific software positively then 83% of reviews from other sources similarly rated it positively. If MicroSIFT rated software positively then 55% of reviews from other sources rated it positively . If Courseware Report Card rated software positively then 63% of reviews from other sources also rated it positively. For those programs EPIE that rated negatively it was found that only 13% of reviews in other sources agreed with this rating. If MicroSIFT rated software negatively it was found that no other sources agreed with this rating. Courseware Report Card rated so few programs negatively that a probability analysis was not undertaken.

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In a detailed analysis of reviews of language arts and reading software programs it was found that reviews ranged from the idiosyncratic to the systematic. Reviews written by independent authors for publications such as Electronic Learning tended to be generally uncritical and positive. There was a marked tendency for these authors to emphasize only several elements of a program in their review, for example content description, graphics or feedback. Reviews by "services" such as Courseware Report Card, MicroSIFT and EPIE followed a uniform format and covered a large number of software design and instructional elements and highlighted strengths and weaknesses of the programs reviewed.

In light of the great numbers of software programs available for purchase reviews offer a useful source for identifying programs that are of suitable quality and which cover appropriate curriculum content. However, this study suggests that in many cases these sources will fail to agree on the ratings they assign to software, that certain sources tend to rate all programs positively despite negative or neutral ratings from other sources, and that there is quite a divide between sources that evaluate software using uniform instruments and those that rely on reviews authored by individuals. Given this situation it seems reasonable that educators and parents should seek out several reviews of programs they are considering purchasing, one of which should be a systematic review source such as MicroSIFT or EPIE. However, it seems important that purchasers preview software, for while one review source might be "tougher" than another the lack of agreement on criteria and standards indicates that the basic decision must lie with the purchaser.

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Introduction

The selection of traditional instructional materials such as textbooks and innovative materials such as microcomputer courseware is a study in contrasts. Traditional materials represent the familiar; from generation to generation the technology of the textbook has remained basically the same. Thus faced with the task of selecting textbooks for purchase teachers, drawing on cultural and educational expectations and experience, have little difficulty identifying the various textbooks that are available, assessing their relative merits and then making a choice. That choice would be based on a small number of textbooks, produced by an ever-shrinking educational publishing industry that publish texts not very different in their instructional or technical design from those of their competitors.

That easy familiarity that characterizes textbook selection is confounded when these same teachers attempt to select educational software. Instead of just a few dozen companies producing a small number of textbooks, as many as 559 educational software companies produce over 6000 programs. Instead of a shrinking producer base, more and more software companies are being established. Instead of a market dominated by perhaps 15 large publishing companies, educational software companies range in size from the very large to the very small. And finally, instead of producing a uniform product with the same basic content, instructional design and methodology, educational software is enormously varied in its design, content and methodology. In such a situation it is not surprising to find that teachers -- and increasingly parents -- are faced with a bewildering task when it comes to selecting educational software. Purchasers cannot scan the "pages" of a software program as they would do with print materials, there are no publishing reps to inform them of what materials are available and there is no uniform producer policy for sending software to schools for preview.

Faced with an information gap of such vast proportions educators and parents are turning to third parties for advice. These third parties are providing information about software through evaluations and reviews of software published in numerous magazines, journals and other sources. That educators are willing to go beyond their own experience and consider the recommendations of others is a positive development especially if it results in the selection of good quality software that meets the needs of students and takes advantage of the unique capabilities of the computer. However, while anything that can help in closing the educational software information gap is to be welcomed, reliance on third party sources begs the question: how many educational software programs have been evaluated and how reliable are those reviews and evaluations?

This paper describes the overall situation in regard to K-12 educational software -- the number and percentage of programs that have been reviewed, the number of programs reviewed by various

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sources, the tendency of these sources to review software positively, negatively or neutrally. It then looks at language arts and reading educational software in detail comparing the quality of review sources.

Some Necessary Caveats

Of the numerous sources that review software only thirty were included in this study. Generally, sources publishing only a few reviews a year and producers, wholesalers and retailers reviewing their own software were excluded.

It is important to point out that software evaluation is still in its infancy and that different approaches to software evaluation produce valuable, if different, information. There seems to be a place and a use for all kinds of reviews and while the bias of this paper is that reviews based upon some systematic criteria are more reliable and easier to assess, reviews written by individuals, although of necessity more diverse and variable in quality, are nonetheless an important supplement in helping educators and parents select software.

This paper makes no claim that evaluations produced by one "systematic" review source are "better" than another. Any differences that do exist are based on the different perspectives and weightings these sources bring to their evaluation process. Given that software evaluation is an imperfect science such differences and diversity are to be applauded. Such a situation simply reinforces the need for software selectors to look at reviews produced by a number of sources prior to making a selection and preview decisions.

Readers will note that 2 review sources -- Courseware Report Card and School Microware Reviews are no longer functioning, nonetheless the programs they reviewed are widely available as are the reviews and so were included in this study.

Finally, the data and trends described in this study reflect the software field until the end of 1984. Given that the software field is dynamic and ever-changing we can expect to see changes by the time this paper reaches its readers.

The Database

For the past few years EPIE Institute has been developing a searchable database of educational software to help educators and parents identify and select appropriate software for preview. The entries for each software program include title, author, producer, content description, grade level, curriculum role, application, microcomputer and price. In addition, as reviews of software programs are

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identified these are added to the database. Reviews are identified from about thirty review sources. These review sources were chosen by a panel of computer education experts as regularly publishing reviews of 'reasonable' quality and quantity and as being accessible to educators and parents.

Analysts characterized reviews as generally positive, generally negative or mixed/neutral. Reviews characterized as generally negative indicated poor technical and or instructional design, content errors and so on. The review sources did not recommend these programs for purchase. Generally positive ratings indicated good technical and instructional design, age and content appropriateness and only minor problems. Mixed reviews contained positive and negative characterizations of the program, but negative comments were such as to not undermine the instructional usefulness of the program. Reviews usually recommended these programs with reservations.

The Overall Picture

As of December 30th 1984 of the 6126 educational software programs in the database 2554 or 41.8% had been reviewed by one of a number of review sources used by EPIE. Although at this point it is not possible to obtain data on the total number of programs reviewed in major subject areas it is possible, by looking at the total number of programs reviewed by EPIE and the total number of programs reviewed by other sources (Table 1), to get some idea of subject area software most likely and least likely to have been reviewed.

Insert Table 1 about here

Business, foreign languages, health, home economics, and industrial arts software were least likely to be reviewed despite the relatively small numbers of programs involved. Major subject areas such as language arts, reading, and social studies/social science software were also least likely to be reviewed, no doubt due to the large numbers of programs available (ranging from 321 for social science/social studies to 736 for language arts). Early childhood, fine arts, logic/problem solving, and mathematics were, given the large number of programs on the market, relatively heavily reviewed.

EPIE reviews tended to cluster around early childhood, fine arts, logic/problem solving, mathematics and reading software. Other review sources were quite weak in industrial arts and home economics. Overall review sources published a large number of reviews of early childhood, fine arts, logic/problem solving and mathematics compared to other subject areas.

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Looking at the total number of educational software programs reviewed by various sources (Table 2) it is clear that educators and selectors will have to refer to a wide number of periodicals, magazines and services if they want to read reviews of specific software programs. Only 3 sources had reviewed more than 4% of available software -- MicroSIFT (4.2%), Courseware Report Card (5.3%), and EPIE (9.4%). The majority of sources had reviewed less than 1.5% of software.

Insert Table 2 about here

Overall various review sources tended to follow distinct patterns in the ratings they gave to the software they reviewed (Table 3). Many sources published a majority of positive reviews. In the case of Classroom Computer Learning, Electronic Learning, InfoWorld, School Library Journal and The Computer Teacher over 80% of their reviews were positive. In the case of sources such as Popular Computing, California Library Media Consortium, Courseware Report Card, and MicroSIFT 70% or more of their reviews were positive. Only EPIE (22%) and Foreign Language Teaching Program (9.1%) published a low number of positive reviews. With the exception of, for example, EPIE (32.7%), Educational Technology (20.2%), MicroSIFT (22.3%) and School Microware Review (21.3%), few sources gave negative ratings. For example, California Library Media Consortium (6.9%), Electronic Learning (1.3%) and School Library Journal (5%). On the whole few reviews could be categorized as neutral or 'mixed'. With the exception of EPIE (45.4%) no other source published more than 25% of neutral or mixed reviews (California Library Media Consortium, 15.6%; Educational Technology, 24.4%; Electronic Learning, 18.4%; Classroom Computer Learning, 4.1%; InfoWorld, 6.1%; The Computer Teacher, 11.9%) and MicroSIFT, 3.9%).

Insert Table 3 about here

The Picture in Detail: Language Arts and Reading

The total number of language arts and reading programs in the EPIE data base numbered 1344, of which 268 had been reviewed by one or more of the review sources used by EPIE. These sources published 569 reviews of which 77 were college programs and hence excluded from this analysis, leaving 492 reviews of programs designed for pre-Kindergarten-12th grade students.

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An analysis of software that had been reviewed showed that 116 (61.9%) had been reviewed by one source only (Table 4), 55 (20.5%) had been reviewed by 2 sources, 22 (8.2%) by three sources, 11 (4.1%) by four sources and 8 (3%) by five.

Insert Table 4 about here

Only three sources (Table 5) had reviewed 5% or more of the language arts and reading software (EPIE, 10.9%; MicroSIFT, 5.1%; School Microware Review, 3.9%). The majority of sources had reviewed less than 1% of this software.

Insert Table 5 about here

Sources tended to publish positive reviews (Table 6). In the case of Courseware Report Card 69.7% of the software it reviewed was rated positively, MicroSIFT rated 61.7% of its software positively and Classroom Computer Learning rated 88.2% of its software positively. EPIE gave few positive ratings (12.3%) Few sources gave programs negative ratings with the exception of EPIE (30.1%), MicroSIFT (29.4%), School Microware Review (34.6%) and The Computing Teacher (33.3%). More sources published neutral or mixed reviews for language arts and reading than for software in general. For example, ten sources published neutral or mixed reviews for over 25% of the programs they reviewed (California Library Media Consortium, 26.9%; Courseware Report Card, 21.2%; EPIE, 57.5%; School Microware Review, 21.2%; and The Computing Teacher, 36.4%).

Insert Table 6 about here

The general trends outlined for language arts and reading software evaluations generally mirror those for all educational software. Educators and parents will find that many programs have not been reviewed and of those that have most will have been reviewed by only one review source. Where programs have been reviewed by more than one source it is possible to find out the extent to which these sources agree in their assessment of the quality of specific software programs.

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Rating Agreement Between Sources

A probability analysis was done to compare the rating agreement between MicroSIFT and other sources, EPIE and other sources, and Courseware Report Card and other sources.

In a probability analysis of review source agreement/disagreement it was found that when EPIE rated software positively 82.7% of reviews from other sources also rated software positively. Disagreement was sharp when EPIE rated software '?' and '-' ; most reviews by other sources rated software positively (70.1%) when EPIE rated it '?' and either positively (51.4%) or neutrally (31.4%) when EPIE rated software negatively. Other source agreement with the the positive ratings of both MicroSIFT (55%) and Courseware Report Card (63.4%) was lower when compared to agreement with EPIE reviews. Disagreement with MicroSIFT negative ratings was 100%.

Insert Tables 7, 8, & 9 about here

A probability analysis of individual review source agreement/disagreement with EPIE, MicroSIFT and Courseware Report Card was carried out. When comparing review agreement/disagreement with EPIE positive reviews Classroom Computer Learning, Electronic Computing, Educational Technology, Media & Methods and MicroSIFT agreed 100% with its positive ratings. The Journal of Curriculum Review rated commonly reviewed software negatively compared to EPIE's positive review. Disagreement with EPIE's '?' and '-' ratings was notable. When EPIE rated software neutrally Classroom Computer Learning agreed only 20% of the time, California Library Media Consortium 28.9% of the time, Courseware Report Card 16.7% of the time and MicroSIFT only 10% of the time. Only Educational Technology (62.5%) showed any notable agreement with EPIE. Most sources tended to rate these programs positively (MicroSIFT, 65%; Courseware Report Card, 50%; California Library Media Consortium, 42.8%; and Classroom Computer Learning, 80%). With the exception of California Library Media Consortium which agreed 20% with EPIE's negative rating of software no other source agreed with EPIE's rating.

When MicroSIFT rated programs positively EPIE agreed only 24% of the time; SECTOR agreed 66.7%, Educational Computing and School Library Journal 100% of the time. School Microware Review agreed only 40% of the time. If MicroSIFT rated programs negatively EPIE rated all of them '?'.

Agreement between Courseware Report Card and EPIE was low. When Courseware Report Card rated programs positively EPIE did so only 22.2% of the time compared with MicroSIFT (66.6%) and SECTOR (83.3%).

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Insert Tables 10, 11, & 12 about here

Comparing Reviews

The variability of review sources of the same program can be quite striking. In the case of **Compu-Read**, a speed reading drill and practice program by Edu-Ware reviewed by Courseware Report Card (February 1983), Closing the Gap Newsletter (9/82), Educational Technology (12/82), School Microware Review (Summer 1982) and EPIE (4/84) we see opinion ranging from the ecstactic to total rejection. The review in Closing the Gap Newsletter was lengthy, favorable, but mainly concerned with some problems in the documentation and in using the menu. Despite these problems the reviewer enthusiatically recommended the program. Courseware Report Card and Educational Technology highly recommended the program. Courseware Report Card, following its standard format, provided extensive bibiographic and content information and in its evaluation section noted that "Teachers looking for flexibility and content control will be pleased with this program," documentation is "excellent," the program "delivers what it states" and "Computer owning parents wishing to give their children a competitive edge could also use this relatively low-cost program." Unusual shift commands came under criticism, but that was all.

"What a delight ... to discover **Compu-Read**" is an opening statement in the Education Technology review. "Students from kindergarten through high school find it fun and challenging." School Microware Review found the program "a fairly effective package of programs...(representing) a good application of the computer," but noted a number of problems such as ungrammatical sentences, inability to change answers, and no variation in presentation. Only the EPIE review totally rejected the program arguing that because research reported a 30% slower reading rate from a monitor than from print the value of such a program was questionable. It also noted that spelling and typing speed affected success - "hardly the intended practice in a speed reading program" and that the computer could not keep pace with a touch typist.

Teachers who reviewed Spinnaker's **Story Machine** for Electronic Learning (February 1983) found the program "delightfully innovative" and a "worthwhile contribution to the much-needed area of computer instruction for primary grades." No problems were noted. Similarly, the Popular Computing (March 1983) review was equally enthusiastic. Both reviews briefly described the content and methodology and both mistakenly reported a word list of 40 words instead of 45. The

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InfoWorld (9/12/83) review by Doug and Denise Green was also positive, but noted some difficulties such as the numerous program bugs, the frustrating effect when brighter students used such limited vocabulary, and the inclusion of uncommon words such as bumpus and zot in an already limited word list. Nonetheless "...there was little doubt that students were enjoying writing stories and watching the animation." The reviewers noted that the program "has a place in the classroom as a first experience for young students", although the reviewers failed to define "young students." The EPIE review (October (1983) rated the program negatively because "the limited word list and the program rules do not permit children to say what they want and discourages the writing of fluid, connected prose." Some words could not be used in ways acceptable in Standard English and while a cat could walk to the house it could not walk in the house. Unlike the InfoWorld review 9- and 5-year-olds tested by EPIE "quickly lost interest in the program."

The review of Data Command's **Alpine Skier** provided examples of a brief, not very helpful review and two reviews that highlighted similar strengths and weaknesses but rated the program quite differently. The review in School Library Journal was brief; bibliographic information was incomplete and the description of content and methodology inadequate. No connection was made between the title and skiing graphics and the program. In the case of the MicroSIFT (June 1983) and EPIE (March 1983) evalations both provided full bibliographic and content description. MicroSIFT found the graphics and game format "motivating and enjoyable" but cautioned that very successful or unsuccessful students would find the program boring and frustrating and so recommended it be used with individuals or small groups for short periods of time. The program received a generally positive rating. In the case of EPIE's review, graphics were found to be well done but repetitious. The content was found to be inappropriate and the absence of remediating feedback was considered a "glaring omission." EPIE found the program unacceptable and recommended rejection.

Reading through the reviews only a small portion of which are described above one is amazed at the variety and lack of consistency. The reviews written by individuals for magazines were the most idiosyncratic and many of these authors found it difficult to do more than sing a program's praises. One suspects if these seasoned educators could get away from the "magic" of the computer and instead consider a program in terms of classroom use the reviews would be much more helpful and informative. Reviewers frequently used their children to try out programs and their success was usually sufficient to validate a positive report of a program. Some reviews were quite eccentric as in the case of an Educational Computer Magazine review that devoted a third of its length to clearing up the percieved confusion of the author's affiliation and a similar program funded by the Federal Government. Of course some of these reviews were helpful and it was clear the reviewers brought a good deal of experience to their assessment of programs. However, even in these cases, learning theory and content expertise were often absent.

Those review sources we have characterized as "systematic" provided extensive bibliographic and program information. In our brief survey Courseware Report Card reviews seemed to be the most uncritical, often making no reference to content appropriateness or learning theory.

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MicroSIFT's and EPIE's reviews were more balanced.

Conclusion

Reviews of educational software are clearly helpful in assessing the suitability of software for preview and selection. But as this paper has shown certain subject areas are "unpopular" and not often reviewed and no one review source has yet reviewed more than a quarter of the available software.

A more disturbing problem is one of general review quality. As our analysis has shown many review sources publish mainly positive reviews. The probability anlaysis showed there was strong disagreement between various review sources and given our analysis of actual reviews it would seem wise for readers to use magazine reviews with caution. While EPIE reviews tended to be more critical than MicroSIFT reviews readers can have more confidence in them given their different emphases and procedures.

Clearly, parents and educators need to exercise caution in their use of reviews. Ultimately it is for them to preview and select software. The extent to which various review sources help in achieving the selection of good quality software that meets the needs of students and the curriculum is problematic and parents and educators need to be just as critical consumers of reviews as they do of software.

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TABLE 1

Reviews of Educational Software Programs by Major Subject Areas

	Total Programs	Total # Reviews	Total # Review by EPIE	Total # of individual programs Reviewed by other Sources
Business	130	63	14 (10.8%)	20 (15.4%)
Computer Programming, Literacy etc.	311	146	13 (4.2%)	56 (18%)
Early Childhood	140	93	25 (17.9%)	36 (25.7%)
Language Arts	736	246	65 (8.8%)	105 (14.5%)
Fine Arts	153	136	40 (26.1%)	42 (27.4%)
Foreign Language	273	60	2 (7%)	38 (13.9%)
Health	64	24	4 (.6%)	8 (12.5%)
Home Economics	99	23	7 (7.1%)	10 (10.1%)
Industrial Arts	55	2	0 (-)	1 (1.8%)
Logic/Problem Solving	95	93	17 (17.9%)	33 (34.7%)
Mathematics	1575	1170	207 (13.1%)	387 (24.6%)
Reading	608	323	81 (13.3%)	118 (19.4%)
Science	828	363	36 (4.3%)	216 (26.1%)
Social Studies/ Social Sience	321	128	26 (8.1%)	53 (16.5%)

TABLE 2

Number and percentage of reviews of all programs by source

		N=2554 reviewed programs	N=6126 all programs
	#	%	%
Classroom Computer Learning (including Classroom Computer News)	74	2.9	1.2
Chime Newsletter	24	.9	.4
Cal. Library Media Consortium	115	4.5	1.9
The Computing Teacher	184	7.2	3.0
Courseware Report Card	328	12.8	5.3
Curriculum Review	49	1.9	.8
Closing the Gap Newsletter	12	.5	.2
Educational Computer	48	1.9	.8
Electronic Learning	76	3.0	1.2
EPIE	575	22.5	9.4
Educational Technology	119	4.6	1.9
Foreign Language Teaching Programs	11	.4	.2
InfoWorld	115	4.5	1.9
Journal of Curriculum Reviews	53	2.1	.9
Journal of Learning Disabilities	19	.7	.3
The Mathematics Teacher	135	5.3	2.2
Media and Methods	7	.3	.1
Media Reviews	18	.7	.3
MicroSIFT	256	10	4.2

TABLE 2 CONTINUED

Popular Computing	32	1.3	.5
The Physics Teachers	3	.1	.5
School Library Journal	20	.8	.3
Sector Project	58	2.3	.9
School MicroWare Review	211	8.2	3.4
The Science Teacher	9	.3	.1
Simulation Games	2	.1	.03
Software Reviews	1	.1	.1

TABLE 3

Number of positive, neutral, and negative reviews of language arts programs by review source

	"−"		"?"		"+"		N=2554
	#	%	#	%	#	%	#
Classroom Computer Learning (including Classroom Computer News)	2	12.7	3	4.1	69	93.2	74
Chime Newsletter	1	4.2	4	16.7	19	792	24
Cal. Library Media Consortium	8	6.9	18	15.6	89	77.3	115
Courseware Report Card	53	16.1	40	12.2	235	71.6	328
Curriculum Review	2	41.	8	16.3	39	79.6	49
Closing the Gap Newsletter	0	-	0	-	12	100	12
The Computing Teacher	14	7.6	22	11.9	148	80.4	184
Educational Computer	3	6.3	8	16.7	37	77.1	48
Electronic Learning	1	1.3	14	18.4	61	80.3	76
EPIE	188	32.7	261	45.4	126	22.	575
Educational Technology	24	20.2	29	24.4	66	55.5	119
Foreign Language Teaching Programs	1	9.1	9	81.8	1	9.1	11
InfoWorld	0	-	7	6.1	108	93.9	115
Journal of Curriculum Reviews	9	17.	3	5.7	41	77.3	53
Journal of Learning Disabilities	2	10.5	4	21.	13	68.4	19
The Mathematics Teacher	12	8.9	20	14.8	103	76.3	135
Media and Methods	0	-	0	-	7	100.	7
Media Reviews	3	16.7	2	11.1	13	72.2	18
MicroSIFT	57	22.3	10	3.9	189	73.8	256
Popular Computing	4	12.5	4	12.5	24	75.	32

TABLE 3 CONTINUED

The Physics Teacher	0	-	0	-	3	100	3
Sector Project	7	12.	10	17.2	41	70.7	58
The Science Teacher	2	22.2	1	11.1	6	66.6	9
School Library Journal	1	.5	2	10.	17	85.	20
School MicroWare Review	45	21.3	35	16.6	131	62.1	211
Simulation & Games	0	-	1	-	2	100	2

TABLE 4

Language Arts and Reading Programs with One or More Reviews*

# Reviews	# Programs	%
1	166	61.9
2	55	20.5
3	22	8.2
4	11	4.1
5	8	3.0
6	1	.4
7	1	.4
8	2	.7
9	1	.4
10	2	.8

N=268

* Based on a search of the TESS database January 1985.

TABLE 5

Number of positive, neutral, and negative reviews of language arts programs by review source

	N=492 reviewed programs		N=1344 language arts and reading programs
	#	%	%
Classroom Computer Learning (including Classroom Computer News)	17	3.4	1.3
Chime Newsletter	2	.4	.1
Cal. Library Media Consortium	26	5.3	1.9
Courseware Report Card	33	6.7	2.4
Curriculum Review	4	.8	.3
Closing the Gap Newsletter	2	.4	.1
The Computing Teacher	22	4.5	1.6
Educational Computer	14	2.8	1.0
Electronic Learning	16	3.1	1.2
EPIE	146	29.7	10.9
Educational Technology	34	6.9	2.5
InfoWorld	8	1.6	.6
Journal of Curriculum Reviews	10	2.0	.7
Journal of Learning Disabilities	2	.4	.1
Media and Methods	6	1.2	.4
Media Reviews	2	.4	.4
MicroSIFT	28	13.8	5.2
MUN	2	.4	.1
Popular Computing	2	.4	.1

TABLE 5 CONTINUED

Sector Project	20	4.1	1.5
School Library Journal	4	.8	.3
School MicroWare Review	52	10.6	3.9

N=492

TABLE 6

Number of positive, neutral, and negative reviews of language arts and reading programs by review source.

	"−"		"?"		"+"		
	#	%	#	%	#	%	N=
Classroom Computer Learning (including Classroom Computer News)	-	-	2	11.8	15	88.2	17
Chime Newsletter	-	-	1	50	1	50	2
Cal. Library Media Consortium	4	15.4	7	26.9	15	57.7	26
Courseware Report Card	3	9.1	7	21.2	23	69.7	33
Curriculum Review	-	-	3	75.0	1	25.0	4
Closing the Gap Newsletter	-	-	-	-	2	100	2
The Computing Teacher	7	33.3	8	36.4	7	31.8	22
Educational Computer	-	-	1	7.1	13	92.8	14
Electronic Learning	-	-	1	6.2	15	93.7	16
EPIE	44	30.1	84	57.5	18	12.3	146
Educational Technology	5	14.7	8	23.5	21	61.8	34
InfoWorld	-	-	-	-	8	100.0	8
Journal of Curriculum Reviews	7	70	1	10	2	22	10
Journal of Learning Disabilities	-	-	-	-	2	100	2
Media and Methods	-	-	-	-	6	100	6
Media Reviews	-	-	2	100	-	-	2
MicroSIFT	20	29.4	6	8.8	42	61.7	68
Mun	1	50	-	-	1	50	2
Popular Computing	-	-	1	50	1	50	2
Sector Project	5	25	2	10	13	65	20
School Library Journal	-	-	-	-	4	100	4
School MicroWare Review	18	34.6	11	21.2	23	44.2	52

TABLE 7

Probability of Review Source Agreement/Disagreement with EPIE Ratings

EPIE "+" rating= 10
Total ratings by other source= 52

Agreement (+) with positive rating (43/52)= 82.7%
Disagreement (?) with positive rating (5/52)= 9.6%
Disagreement (-) with positive rating (5/52)= 7.7%

EPIE "?" ratings= 36
Total ratings by other sources= 77

Disagreement (+) with ? rating (54/77)= 70.1%
Agreement (?) with ? rating (13/77)= 16.9%
Disagreement (-) with ? rating (10/77)= 13.0%

EPIE "-" ratings= 21
Total ratings by other sources= 35

Disagreement (+) with - rating (18/35)= 51.4%
Disagreement (?) with - rating (1 /35)= 31.4%
Agreement (-) with rating (6/35)= 17.1%

TABLE 8

Probability of Review Source Agreement/Disagreement with Courseware Report Card Ratings

Courseware Report Card "+" rating= 17
Total ratings by other source= 41

Agreement (+) with positive rating (26/41)= 63.4%
Disagreement (?) with positive rating (6/41)= 1.5%
Disagreement (-) with positive rating (9/41)= 2.2%

Courseware Report Card "?" ratings= 4
Total ratings by other sources= 5

Disagreement (+) with ? rating (2/5)= 40.1%
Agreement (?) with ? rating (1/5)= 20%
Disagreement (-) with ? rating (2/5)= 40%

Courseware Report Card "-" ratings= 2
Total ratings by other sources= 5

Desagreement (+) with - rating (3/5)= 60%
Disagreement (?) with - rating (2/5)= 40%
Agreement (-) with rating (0)= 0

TABLE 9

Probability of Review Source Agreement/Disagreement with MicroSIFT Ratings

MicroSIFT "+" rating= 29
Total ratings by other source= 78

Agreement (+) with positive rating (43/78)= 55%
Disagreement (?) with positive rating (24/78)= 31%
Disagreement (-) with posotive rating (11/78)= 14%

MicroSIFT "_" rating= 8
Total ratings by other sources= 12

Disagreement (+) with "_" rating (5/12)= 41.7%
Disagreement (?) with "_" rating (7/12)= 58.3%
Agreement (-) with rating (0/12)= 0

TABLE 10

Probability of agreement by individual review sources with EPIE ratings

If EPIE rates a program + and then probability of other sources rating + :

Classroom Computer Learning	+	(6/6) = 100%
Electronic Computing	+	(6/6) = 100%
Educational Technology	+	(5/5) = 100%
Journal of Curriculum Review	-	(4/4) = 100%
Media and Methods	+	(4/4) = 100%
MicroSIFT	+	(6/6) = 100%
Sector	+	(4/5) = 80%
	?	(1/5) = 20%

If EPIE rates a program ? then probability of other sources rating? :

Classroom Computer Learning	+	(4/5) = 80%
	?	(1/5) = 20%
Cal. Library Media Consortium	+	(3/7) = 42.8%
	?	(2/7) = 28.9%
	-	(2/7) = 28.9%
Courseware Report Card	+	(3/6) = 50%
	?	(1/6) = 16.7%
	-	(2/6) = 33.3%
Electronic Learning	+	(6/6) = 100%
Educational Technology	+	(3/8) = 37.5%
	?	(5/8) = 62.5%
MicroSIFT	+	(13/20)= 65%
	?	(2/20) = 10%
	-	(5/20) = 25%

TABLE 10 CONTINUED

If EPIE rates a program - then probability of other sources rating - :

California Library Media Consortium	+	(2/5) = 45%
	?	(2/5) = 40%
	-	(1/5) = 20%
Courseware Report Card	+	(4/5) = 80%
	?	(1/5) = 20%
Educational Technology	+	(2/5) = 40%
	?	(3/5) = 60%
MicroSIFT	+	(5/5) = 100%

TABLE 11

Probability of agreement by individual review sources with MicroSIFT ratings.

If MicroSIFT rates a program +, then probability of other source rating + :

EPIE	+ (6/25)= 24%
	? (14/25)= 56%
	- (5/25)= 20%
Sector	+ (6/9)= 66.7%
	? (1/9)= 11.1%
	- (2/9)= 22.22%
School Microware Review	+ (2/5)= 40%
	? (2/5)= 40%
	- (2/5)= 20%
Educational Computing	+ (5/5)= 100%
School Library Journal	+ (5/5)= 100%

If MicroSIFT rates a program "-" then the probability of other sources rating - :

EPIE	"+" (0/5)= 0%
	"?" (5/5)= 100%

TABLE 12

Probability of agreement by individual review sources with Courseware Review Card rating

If Courseware Review Card rates a program + then probability of other sources rating + :

EPIE	+ (2/9)= 22.2%
	? (3/9)= 33.3%
	- (4/9)= 44.4%
MicroSift	+ (2/3)= 66.6%
	- (1/3)= 33.3%
Sector	+ (5/6)= 83.3%
	? (1/6)= 16.7%

(Courseware Review Card had reviewed 4 programs rating with a rating of ? : only 5 other reviews were identified. It also review only 2 programs with a rating of "-" and only 6 other reviews identified).